

5e



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/680,041	10/05/2000	Hiok-Nam Tay	09785980-0076	9058
25700	7590	03/26/2004		
FARJAMI & FARJAMI LLP 26522 LA ALAMEDA AVENUE, SUITE 360 MISSION VIEJO, CA 92691			EXAMINER AGGARWAL, YOGESH K	
			ART UNIT 2615	PAPER NUMBER
			DATE MAILED: 03/26/2004	

5

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/680,041

Applicant(s)

TAY, HIOK-NAM

Examiner

Yogesh K Aggarwal

Art Unit

2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-59 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-59 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 October 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

Art Unit: 2615

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-4, 8-10, 12-13, 15-18, 22-24, 26, 27, 29-40, 45-48, 50-59 are rejected under 35 U.S.C. 102(e) as being anticipated by Heller et al. (US Patent # 6,396,539).

[Claim 1]

A one-time programmable solid-state device (figure 2: 10)[It is called one-time programmable because the memory 14 can be made of a fuse memory which can be programmed only once, See col. 4 lines 42-44] comprising:

a programmable memory unit (figure 2: 14) embedded in a die within the one time programmable solid-state device (col. 3 lines 54-57)[The programmable memory 14 is embedded in a single chip 10];

a driver circuit (figure 2: 16) that programs the programmable memory unit (col. 4 lines 1-5);
and

an access circuit (figure 2: 16) that enables access to the programmable memory unit (col. 4 lines 1-5).

[Claim 2]

Art Unit: 2615

The one time programmable solid-state device of claim 1 wherein the programmable memory unit includes a number of memory cells with each memory cell of the number of memory cells having a gate (col. 4 lines 36-39, col. 4 lines 49-51)[CMOS has a gate].

[Claim 3]

The one time programmable solid-state device of claim 2 wherein the memory cells are arranged in a two-dimensional array having a number of rows of memory cells and a number of columns of memory cells (Figure 2 discloses a programmable memory 14 arranged in a two-dimensional array having a number of rows and columns]

[Claim 4]

The one time programmable solid-state device of claim 3 wherein the number of rows of memory cells is equal to a predetermined number, and the number columns of memory cells is equal to the predetermined number [It is inherent that the number of rows and columns is equal to a predetermined number].

[Claims 8-10]

The one time programmable solid-state device of claim 2 wherein a programming a code is stored in the programmable memory unit (col. 4 lines 49-57) [The security/identification values include a code, serial number or a product identifier].

[Claim 12]

The one time programmable solid-state device of claim 2 wherein the number of memory cells contains an address of at least one defective pixel that is located in an imaging device on the die of the one time programmable solid-state device (col. 8 lines 21-22 figure 5: step 64).

[Claim 13]

Art Unit: 2615

The one time programmable solid-state device of claim 12 wherein at least one memory cell of the number of memory cells is permanently encoded (col. 6 lines 17-22)[Using fuse memory to program identification information makes it permanently encoded].

[Claim 15]

The one time programmable solid-state device of claim 1 wherein the driver circuit and access circuit are embedded in the die (col. 3 lines 54-57, col. 4 lines 1-5)[The programmable memory 14 is embedded in a single chip 10. The driver circuit and access contained in the controller unit 16 are both contained in the same die];

[Claims 16-18, 22-24,26,27]

These claims correspond to claims 2-4, 8-10,12,13. Therefore claims 16-18, 22-24,26,27 have been analyzed and rejected based upon the claims 2-4, 8-10,12,13 respectively.

[Claim 29]

A method for programming a one-time programmable solid-state device comprising:
writing, with a driver circuit (figure 2: 16), to a programmable memory unit (figure 2: 14) embedded in a die within the programmable solid-state device (col. 4 lines 1-5); and
accessing, with an access circuit (figure 2: 16), the one time programmable solid-state device (col. 4 lines 1-5);

[Claim 30]

The method of claim 29 wherein the programmable solid-state device is a solid-state imaging device (col. 3 lines 54-57. figure 2: 10).

[Claim 31]

Art Unit: 2615

The method of claim 30 further includes identifying a defective pixel within the solid-state imaging device (col. 8 lines 21-22 figure 5: step 64).

[Claim 32]

The method of claim 29 wherein the driver circuit and access circuit are embedded in the die (col. 4 lines 1-4 figure 2: 10 and 16)[The controller unit 16 contains both the access and driver unit and is contained on the same chip 10]

[Claim 33]

The method of claim 32 wherein the programmable solid-state device is a solid-state imaging device (col. 3 lines 54-57. figure 2: 10).

[Claims 34-36]

The method of claim 29 wherein writing further includes storing a code in the programmable memory unit (col. 4 lines 49-57) [The security/identification values include a code, serial number or a product identifier].

[Claim 37]

A method of data storage comprising:

identifying an address of a defective pixel in a photo-sensor having a plurality of pixels arranged in a two-dimensional array in a die within a programmable solid-state imaging device and storing the address in a programmable memory unit that is embedded in the die of the solid-state imaging device (col. 7 lines 49-57).

[Claim 38]

The method of claim 37 wherein identifying includes identifying a row and a column that corresponds to the defective pixel in the photo-sensor (col. 7 lines 49-57)[It is inherent that when

Art Unit: 2615

the location of a defective pixel is identified both the row and column of that pixel has to be identified].

[Claim 39]

The method of claim 38 wherein storing includes permanently encoding the address of the defective pixel in the programmable memory unit [If a fuse memory is used as explained above then the address of the defective pixel location is permanently encoded or programmed].

[Claim 40]

The method of claim 39 wherein storing further includes permanently encoding the address into a row having a plurality of transistors in the programmable memory unit, where each transistor in the plurality of transistors has a gate (col. 4 lines 36-39, col. 4 lines 49-51)[Permanently encoding is read as programming the CMOS memory array with an address wherein each CMOS has a gate].

[Claims 45-48, 50]

Claims 45-48, 50 are apparatus claims corresponding to method claims 1-4 and 15 respectively.

Therefore they have been analyzed and rejected based upon method claims 1-4 and 15.

[Claims 51-56]

Claims 51-56 are apparatus claims corresponding to method claims 29,30,34-36,32 respectively.

Therefore they have been analyzed and rejected based upon method claims 29,30,34-36,32.

[Claims 57-59]

Claims 57-59 these are apparatus claims corresponding to method claims 37-39 respectively.

Therefore they have been analyzed and rejected based upon method claims 37-39.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 11, 25 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heller et al. (US Patent # 6,396,539) in view of Banham et al. (US Patent # 6,141,453).

[Claims 11]

Heller teaches the limitations of claim 2 but fails to teach "... wherein the solid-state device is an application specific integrated circuit (ASIC) having at least one predetermined configuration value in the programmable memory unit." However Banham discloses that it is well known and used in the art to have a solid-state device is an application specific integrated circuit (ASIC) having at least one predetermined configuration value in the programmable memory unit (col. 7 lines 5-10 figure 6: 601)[The device disclosed can be implemented as a memory which is programmable and is an ASIC]. Therefore taking the combined teachings of Heller and Banham it would have been obvious to one skilled in the art at the time of the invention to have a solid-state device which is an application specific integrated circuit (ASIC) having at least one predetermined configuration value in the programmable memory unit. Doing so would reduce the cost of manufacture, as ASICs can be mass-produced to have a smaller cost.

[Claim 25]

Claim 25 corresponds to claim 11. Therefore it has been analyzed and rejected based upon the claim 11.

Art Unit: 2615

[Claim 49]

Claim 49 is an apparatus claim corresponding to method claim 11. Therefore it has been analyzed and rejected based upon method claim 11.

5. Claims 5-7, 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heller et al. (US Patent # 6,396,539) in view of Forbes et al. (US PG-PUB # 2002/0001219).

[Claim 5]

Heller teaches the limitations of claim 2 but fails to teach "... wherein each memory cell in the number of memory cells is a capacitor". However Forbes discloses that it is well known and used in the art to have a memory cell formed of a capacitor (Paragraph 0054, figure 2(a): 118 and 100). [The reference discloses that the memory 100 has a capacitor 118 and can be used in a CMOS technology]. Therefore taking the combined teachings of Heller and Forbes it would have been obvious to one skilled in the art at the time of the invention to have a memory cell formed of a capacitor. Doing so would allow the overall area of the memory to be smaller because the surface area of the capacitor is small as compared to the gate electrode as taught in Forbes (Paragraph 0055 lines 4-7).

[Claims 6 and 7]

Heller teaches the limitations of claim 2 but fails to teach "... wherein each memory cell in the number of memory cells is a transistor and wherein the transistor is a FET. However Forbes discloses that it is well known and used in the art to have a memory cell formed of a transistor and wherein the transistor is a FET (Paragraph 0054, figure 2(a): 114 and 100). [The reference discloses in figure 2(a) that the memory 100 has a transistor 114, which is a FET and can be used in a CMOS technology]. Therefore taking the combined teachings of Heller and Forbes it would

Art Unit: 2615

have been obvious to one skilled in the art at the time of the invention to have a memory cell formed of a transistor and wherein the transistor is a FET. Doing so would allow the memory cell to be programmed with a voltage as low as +/- 5V, which is consistent with CMOS technology as taught in Forbes (Paragraph 0054).

[Claims 19-21]

Claims 19-21 correspond to claims 5-7. Therefore claims 19-21 have been analyzed and rejected based upon the claims 5-7 respectively.

6. Claims 14, 28, 41, 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heller et al. (US Patent # 6,396,539) in view of Haroun et al. (US Patent # 6,532,514).

[Claims 14, 28 and 41]

Heller teaches the limitations of claim 13, 27 and 40 but fails to teach "... wherein storing further includes breaking down the gate on each transistor in the plurality of transistors that corresponds to a logic 1 in the address". However Haroun discloses that it is well known and used in the art to have logic one in the memory by breaking down the gate (col. 3 lines 11-19). Therefore taking the combined teachings of Heller and Haroun it would have been obvious to one skilled in the art at the time of the invention to have logic one in the memory by breaking down the gate. Doing so would allow to easily identifying the rest of the transistors, which have logic zero making the process faster.

[Claim 42]

The method of claim 41 further includes accessing the address stored in the programmable memory unit (Heller, col. 8 lines 39-50).

Art Unit: 2615

7. Claims 43, 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heller et al. (US Patent # 6,396,539) in view of Haroun et al. (US Patent # 6,532,514) in further view of Michiyama (US Patent # 5,410,511).

[Claim 43]

Heller in view of Haroun teaches the limitations of claim 42 but fails to teach "... wherein accessing further includes detecting a leakage current flowing through the gate oxide of at least one of the transistors". However Michiyama discloses that it is well known and used in the art to detect a leakage current flowing through the gate oxide of at least one of the transistors (col. 8 lines 35-39). Therefore taking the combined teachings of Heller, Haroun and Michiyama it would have been obvious to one skilled in the art at the time of the invention detect a leakage current flowing through the gate oxide of at least one of the transistors. Doing so would allow reading the information in the flash memory as taught in Michiyama (col. 8 lines 35-39).

[Claim 44]

The method of claim 43 wherein accessing further includes amplifying the detected leakage current (col. 8 lines 35-39).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yogesh K Aggarwal whose telephone number is (703) 305-0346. The examiner can normally be reached on M-F 9:00AM-5: 30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's primary examiner, Vu Le can be reached (703) 308-6613. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Application/Control Number: 09/680,041

Page 11

Art Unit: 2615

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

YKA

March 11, 2004


VULE
PRIMARY EXAMINER